

What is a “perfect input package”?

In any team effort, communication is an absolute must; therefore, it is imperative that the communication between circuit designer, board designer, and package designer be very much open, frequent, and clear. The best place to start and most important is the transfer of information from your company to us.

There are generalities that we must assume here. First, and foremost, information must be clear and concise. Many times individuals have given us too little information, but there is a point where too much information can be a problem too. Too much information can slow the process down and create ambiguity. Limit your information to what is needed, rather than throwing everything this way.

Secondly, the information must be consistent with each other. A bill of materials that has a manufacturer part number that does not match a part specification that has been provided is an obvious demonstration of this; or even when a mechanical drawing has a part called out that is not on the bill of materials. You get the idea.

Third, when giving out part numbers, use the entire manufacturer’s part number. (i.e. 74LS04N rather than 74LS04). [Digi-key Corporation](#) (though they offer wonderful service), does not make parts. The manufacturer’s part number is where the buck stops anyway. There have sometime been errors on the DK website, so take the time to put the manufacturer’s part number down. An even still better alternative is to utilize your company’s part numbering system. We prefer to have your company’s system that calls a part in your library. More on this later.

Lastly, please use alpha-numeric pins for things such as transistors, diodes, even polarized caps, especially if there is more than one person working with your schematic symbols. Different engineers, different naming conventions. **Numeric pin numbers on these items are the number one reason boards have unwanted revisions.** I cannot stress this point enough.

Ok, what is the “perfect input package”? here’s a list.

- **Schematic Diagram** (preferably in electronic form and not on a napkin).
- **Bill of Materials** with your company’s part numbering system and mfg’s P/N.
- **Netlist** (Pads preferred) with the part section calling out your P/N or MFG P/N.
- **Board Outline** with all “hardplaced” items dimensioned, referenced, and oriented. Keep-out and height restricted areas should also be defined.
- **Component specifications** that include pinout and mechanical diagrams at minimum.
- Any and all **design rules** that include special treatment (i.e.; controlled Z, differential pairs, High speed busses, High Power, etc).
- Any **application specific layout info** provided by the mfg if applicable.
- Company board number, Assembly Number, and other **Nomenclature info**.
- **Company specific rules** if you have them.

So that’s a perfect input package. See how close you can come to it.